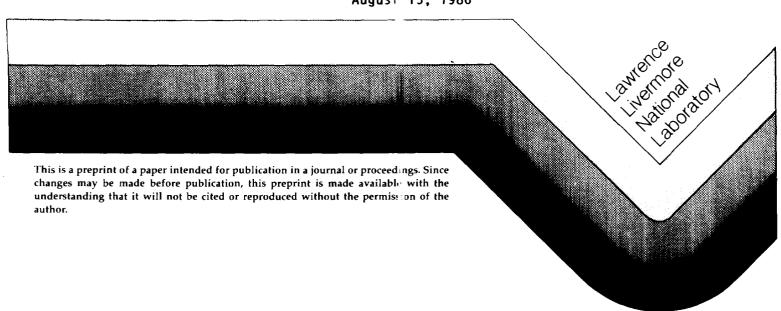
THE Be-Pa (BERYLLIUM-PROTACTINIUM) SYSTEM

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This paper was prepared for submittal to Bulletin of Alloy Phase Diagrams

August 15, 1986



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Equilibrium Diagram

The melting point of βBe and the βBe --> αBe allotropic transformation temperature are 1289 \pm 4 and 1270 \pm 6 °C, respectively [86BAP]. The corresponding values for βPa and αPa are 1572 and 1170 °C, respectively [85War].

Only one compound, Be₁₃Pa, exists in the Be-Pa system as in other Be-Actinide systems [75Ben]. The melting point of Be₁₃Pa is not known.

Crystal Structures

The crystal structure and lattice parameter data are given in Table 1. The structure of Be₁₃Pa is isomorphous to NaZn₁₃ [75Ben].

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- 78Boh: J. Bohet and W. Muller, "Preparation and Structure Studies of 'Van Arkel' Protactinium", J. <u>Less-Common Met.</u>, <u>57</u>, 185-199 (1978). (Crys Structure; Experimental)
- 85War: J.W. Ward, P.D. Kleinschmidt, and D.E. Peterson, "Thermochemical Properties of the Actinide Elements and Selected Actinide-Noble Metal Intermetallics," <u>Handbook of the Physics and Chemistry of the Actinides</u>, C. Keller and A. Freeman, Ed., North-Holland, Amsterdam (1985). (Equi Diagram; Review)
- 86BAP: to be published in <u>Bull. Allcy Phase Diagrams</u>, (1986). (Equi Diagram; Compilation)
- * Indicates key paper.

General References

[King1]: H.W. King, "Crystal Structures of the Elements at 25 °C", <u>Bull.</u>
<u>Alloy Phase Diagrams</u>, 2(3), 401-402 (1981)

[King2]: H.W. King, "Temperature-Dependent Allotropic Structures of the Elements", <u>Bull. Alloy Phase Diagrams</u>, 3(2), 275-276 (1982)

Acknowledgments

Be-Pa evaluation contributed by L.E. Tanner, L-217, Lawrence Livermore National Laboratory, P.O. Box 808, Livermore, CA 94550, H. Okamoto, B77G, Lawrence Berkeley Laboratory, Berkeley, CA 94720, and D.E. Peterson, Los Alamos National Laboratory, Los Alamos, NN 87545. Work was partially supported by American Society for Netals (ASN) and the National Bureau of Standards (NBS). Literature searched through 1985. Part of the bibliographic search was provided by ASN, L.E. Tanner and H. Okamoto are the ASN/NBS Data Program Category Editors for binary beryllium alloys, and D.E. Peterson is the Category Editor for binary actinide alloys. Work was performed under the auspices of the U.S. Department of Energy by the Lawrence Livermore National Laboratory under Contract W-7405-Eng-48.

Table 1 Be-Pa Crystal Structure and Lattice Parameter Data

Composition, Phase at.% Pa	Pearson	Struktur- n bericht designation	Space group	Proto- type	Lattice p	oarameter: c	s, nm Reference
(βBe) O	c I 2	A2	Im3m	W	0.25515	* * t	EKing21
(αBe) O	hP2	A3	P6₃/mmc	Mg	0.22857	o.35839	[King1]
Be ₁₃ Pa 7.14	cF112	D2s	Fm3⊂	NaZn _{is}	1.02607±3	25	[75Ben]
(ßPa) 100	cF⁴4	A1	Fm3m	Ou	0.5018		[78Boh]
(αPa) 100	t12		I4/mmm	Pa	0.3921	0.3235	[78Boh]